ADJUSTMENTS IN OPEN FLOOR SPACE AND STORAGE SPACE DIVISIONS EXPRESSED BY TWENTY HOMEMAKERS WHO LIVE IN SPECULATIVE BUILT HOUSES

by

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C.J.D.

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INTRODUCTION AND PURPOSE

I. INTRODUCTION

With the increasing cost of housing and the decreasing size of the house, it is possible that some necessary spaces in small houses have either been made very small or omitted. The lack of convenient housing divisions may be reflected in limitations of some family activities. With the mushrooming of the small speculative housing developments, it is possible that some of the family housing needs are being overlooked. These common observations were pointed up in Life Magazine:

> Between 1929 and 1952 the proportions of the family income for housing has decreased 25 percent. Meanwhile, the cost of a square foot of the house has increased by 250 percent. ...By the immutable laws of building economics--modern families are living in houses in which ceiling heights have been lowered, the walls have closed in, the storage space has dwindled drastically, the grounds have shrunk and everything that makes for livability has been squeezed to a minimum. The space is inadequate and poorly divided.[1]

Most of the houses built each year are builder's houses. "Thirty years ago, most of the houses built were for a specific family. Today five out of six houses built, are built for sale to

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[1] "The U.S. Need For More Livable Homes," Life, September 15, 1958, pp. 62-63.

an unknown buyer."[2] As summerized by Life, the most popular house with the mass builders during the past ten years is just under 1200 square feet, including a carport storage closet. It has three bedrooms, one and one and one-half baths, an open plan for living-dining, and no entrance hall. Such a house is likely to be cramped and poorly planned.[3] Although women are mainly responsible for child care, housework, food preparation, and family activities, most of the houses built for speculative sale are planned by men. This, perhaps, is one of the reasons that the housing needs of homemakers may be overlooked.

The review of literature includes space requirement studies which recommend space needs for particular areas of houses. However, the minimum size house may not permit the inclusion of all such recommendations. Homemakers who are living in a small house may be able to point up the living and storage space requirements to which they give priority.

The increasing demand for houses designed to meet the needs of families on the one hand and to consider the limitations of the budget on the other led to this study, "Adjustments In Open Floor Space and Storage Space Divisions Expressed by Twenty Homemakers Who Live In Speculative Built Houses." It is hoped that this study will provide helpful information to speculative builders and will promote the development of a more comprehensive study of this nature.

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[2] House and Home, July 1960, p. 42.

[3] Life, op. cit., p. 62.

II. PURPOSE

To determine how homemakers who live in speculative built houses would prefer their total square footage of housing space divided into storage and open floor spaces for rooms was the primary purpose of this study. In other words, given the same total square footage as now provided by the speculative built houses they own, this study sought to uncover how homemakers would like to change the sizes of rooms and amounts of storage spaces in their houses. In addition, the preferred arrangement of rooms to one another was sought.

Since it was possible that differences between families, differences in house plans and differences in the sizes of rooms and storage spaces would influence the results, the hypotheses that the differences in the amounts of space or the suggested changes in space were not associated with these differences were tested.

CHAPTER II

REVIEW OF LITERATURE

The Research and Marketing Act passed in 1946 allocated some federal funds for research in relation to the family needs in housing. The majority of research in this area has been conducted by the Agricultural Experiment Stations in the Land Grant Colleges and concentrated on the rural housing throughout the country.

Although most of the research has been designated for rural housing, many of the findings apply to both rural and urban housing. However, it is regretable that the funds are earmarked for rural housing research where the majority of the families in America today live in other than rural areas.

A review of the literature indicated that following a survey of the rural housing situation, studies were centered on the floor space requirements for either specific areas in the house or specific household tasks and activities.

Results of these and other studies concerned with floor space needs are reviewed below according to areas or rooms.

Kitchens

A publication compiled by the Southern Regional Housing Committee as a guide to assist planners and builders in designing

rural houses for the Southern Region suggested the following space allowances for straightline kitchen work centers:[1]

COUNTER WIDTH REQUIREMENTS

Work center	Counter widths	
	Limited	Liberal
	inches	
Mix	36	42
Left of sink	18	36
Right of sink	24	36
Range-serve	12	24
Refrigerator-serve	15	18

The Northeastern Research publication, Farmhouse Planning Guides suggested minimum lengths of counter spaces were:[2]

MINIMUM COUNTER SPACE REQUIREMENTS FOR FOOD PREPARATION

Center	Minimum width
	inches
Refrigerator--at open side	15
Sink--no dishwasher	
at left side of bowl	32
at right side of bowl	36
Mix--free standing	36
adjacent to another center	28
Range	21
Serve--free standing	
for salad plates	28
for dinner plates	36

The maximum depth of the working surface recommended was twenty inches, however, the conventional depth of base cabinets

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[1] Planning Guides for Southern Rural Homes (Southern Regional Housing (S8) Research Technical Committee, Southern Cooperative Series Bulletin No. 58, 1958), p. 9.

[2] Farmhouse Planning Guides (A Northeastern Regional Research Publication, 1959), p. 11.

is twenty four inches. It was suggested that the extra space could be used for counter storage.[3]

Measurements for shelf, filing, hanging, bin, and drawer storage were given in the Farmhouse Planning Guides. Since it was difficult to transpose these figures into floor space requirements for storage, only the counter space requirements were used as an indication of the floor space requirement.

In the study made by Mary Koll Heiner and Helen E. McCullough, Functional Kitchen Storage, inside cabinet dimensions were recommended for each work center. The recommended inside widths for storage units were:[4]

FUNCTIONAL DIMENSIONS RECOMMENDED FOR STORAGE CABINETS

Center	Widths
	inches
Utensil storage at the range	16, 24
Utensil storage at the sink	24, 28
Utensil storage at mix	20, 24
Packaged supplies, all types	24, 36
China and glassware	20, 24, 36

Heiner and McCullough recommended less than standard depths for kitchen storage cabinets, however, such findings cannot be transposed into the standard kitchen cabinet storage provided by builders.

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[3]Ibid.

[4]Mary Koll Heiner and Helen E. McCullough, Functional Kitchen Storage (Cornell University Agricultural Experiment Station, Bulletin 846, New York: Ithaca, June 1948), p. 5.

The Servel Homemakers's Institute conducted research on the preparation of eighty-four seasonal meals in a test kitchen set up with the purpose to develop basic guides for planning convenient kitchens. The minimum amounts of storage space for wall and base cabinets according to this study were, at the refrigerator, thirty six inches in length; near the sink, in addition to the under sink cabinet, cabinets eighteen inches in length on each side of the sink; and near the range, cabinets eighteen inches in length. The figures do not include storage space for dishes and were not recommended minimums for kitchens but rather minimum storage for specific centers.[5]

In the Farmhouse Planning Guides, the dimensions on standards for body clearance in the kitchen were:[6]

DIMENSIONS STANDARDS FOR BODY AND EQUIPMENT CLEARANCE

Item	Dimensions
	inches
Front of sink bowl and front of range	42
Front of sink and side of range	36
Front of sink or cabinet, and front of range	36
Front of cabinet and refrigerator	36

In Planning Guides for Southern Rural Homes the dimensions used for body clearance between opposite appliances were four to six feet.[7]

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[5] A New Concept of Planning Modern Gas Kitchens (Homemaker's Institute, Servel, Inc. Indiana: Evansville, 1949), p. 15.

[6] Farmhouse Planning Guides, op. cit., p. 12.

[7] Planning Guides for Southern Rural Homes, op. cit., pp. 12-14.

According to the literature reviewed, the suggested minimum storage for the kitchen centers not including dish storage ranged from 7.00 to 13.33 linear feet. When multiplied by the conventional depth of two feet for base cabinets, the minimum kitchen storage ranges from 14.00 to 26.00 square feet of floor space. The liberal dimensions for linear kitchen storage in the kitchen center not including dish storage ranged from 12.33 to 14.66 feet, which when multiplied by two feet, required 24.66 to 29.32 square feet of floor space for kitchen storage.

The 1959 Federal Housing Administration minimum kitchen storage requirements were at least twenty square feet of base cabinet storage space which did not include the area occupied by the sink basin and cooking units, but did include a forty inch space for the range which could be counted as four square feet of base cabinet shelving and two square feet of counter top space. The depth of the counter top requirements was a minimum of fifteen inches or a maximum of thirty inches.[8]

The minimum kitchen measurements for small houses were:[9]

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[8]Federal Housing Administration Minimum Property Standards for One and Two Living Units (Washington: U.S. Government Printing Office, Revised July 1959), p. 35.

[9]Ibid., p. 32.

FHA MINIMUM KITCHEN STANDARDS

Number of bedrooms	Sizes
	square feet
Separate kitchen	
One and two	60
Three	70
Four	80
Combination kitchen and dining area	
One and two	100
Three	110
Four	120

At least three feet and four inches are required for clear passage between face to face base cabinets or an opposite wall.

Dining Area and Serving the Table

The following measurements were recommended for individual place settings at the table:

SPACE REQUIREMENTS FOR INDIVIDUAL PLACE SETTINGS

Limited		Liberal	
Length	Width	Length	Width
inches		inches	
24	12	29	15[10]
21	14½	29	14½[11]

The research recommended the following measurements for clearances at the dining table:

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[10] Planning Guides for Southern Rural Homes, op. cit., p. 53.

[11] Farmhouse Planning Guides, op. cit., p. 16.

SPACE REQUIREMENTS FOR CLEARANCE AROUND TABLE

Conditions	For getting up		For serving	
	Limited	Liberal	Limited	Liberal
	inches			
From the edge of the table to the wall	24	30	30	36[12]
Between the occupied chair and the wall	22	24	22	25[13]

The Planning Guides for Southern Rural Homes recommended the following measurements for the dining area for six persons:

DINING AREA FOR SEATING AND SERVING SIX PERSONS

Number or sides and/or ends served	Limited				Liberal			
	Width		Length		Width		Length	
	ft.	in.	ft.	in.	ft.	in.	ft.	in.
Two persons on each side and one at each end of the table.								
Four sides	8	0	10	0	9	4	12	4
Two sides, one end	8	0	9	6	9	4	11	10
Two ends, one side	7	6	10	0	8	10	12	4
One end, one side	7	6	9	6	8	10	11	10
One side	7	6	9	0	8	10	11	4
One end	7	0	9	6	8	4	11	10
Three persons per side								
One end	7	0	8	0				
One end and one side	7	6	8	0				
Two sides	8	0	8	0				

[12] Planning Guides for Southern Rural Homes, op. cit., p. 53.

[13] Space Standards for Home Planners (Western Cooperative Series. Research Report No. 2E-1. Arizona Agricultural Experiment Station, 1960), p. 1.

The table sizes recommended for serving six persons were three by five feet to three feet four inches by six feet four inches.[14]

The Northeastern Research Publication, Farmhouse Planning Guides, recommended the following sizes for dining areas for a specified number of persons.[15]

DINING AREAS RECOMMENDED FOR SERVING SPECIFIED NUMBER OF PERSONS WITH MINIMUM COVER SPACE AND CLEARANCE

Number to be served	Total area including table and chairs with passage behind chairs on:*							
	One side				Two sides			
	Length		Width		Length		Width	
	ft.	in.	ft.	in.	ft.	in.	ft.	in.
6	7	7	6	10	9	0	6	10
8	8	10	7	7	9	0	8	10
10	10	10	7	7	10	10	9	0
12	12	10	7	7	12	10	9	0

*Table 42 inches wide, cover 21 inches long, chair 19 inches wide by 19½ inches deep.

The Arizona Agricultural Experiment Station in the Western Cooperative series, Space Standards for Home Planners recommended that the dining area for four persons should be ten by ten and one-half feet, with two feet added to the length of the table and the room for each additional seating unit. The dining table used for serving four and six persons was seventy two by forty two inches.[16]

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[14] Planning Guides for Southern Rural Homes, op. cit., pp. 54-56.

[15] Farmhouse Planning Guides, op., cit., p. 16.

[16] Space Standards for Home Planners, op. cit., p. 1.

The recommended shelf space for the storage of dishes and glassware required shelves of the following measurements:[17]

STORAGE FOR DISHES AND GLASSES

Quantity of dishes and glassware	Length of shelving	
	12 in. deep	20 in. deep
Limited	12'-9" to 29'-9"	0'-9" to 1'-6"
Moderate	21'-0" to 36'-0"	2'-0" to 2'-0"
Liberal	40'-3" to 47'-9"	2'-3" to 2'-3"

The literature reviewed indicated that the clearance required for getting up from the table and for serving the table ranged from twenty two to thirty inches and twenty two to thirty six inches, respectively. The recommended measurements for individual place settings ranged from twenty one to twenty nine inches in length and twelve to fifteen inches in width. The requirements for dish storage were difficult to translate to square feet of floor space.

The recommended floor space measurements for a dining area ranged from 51.77 to 56.00 square feet for a limited area, and 115.04 to 136.50 square feet for a liberal area, when four to twelve persons were served. To the writer's knowledge this research on sizes of dining areas did not include dish storage.

The 1959 Federal Housing Administration minimum floor space requirements for the dining room were:

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[17] Ibid., p. 2.

FHA MINIMUM DINING ROOM STANDARDS

Number of bedrooms	Size
	square feet
One or two	80
Three	95
Four	110

A minimum width of six feet is required by FHA for a dining space in the kitchen if it is the only eating space in the living unit.[18]

Bedrooms and Bathrooms

A house to house study in the New York Area on the bedroom and bathroom storage space and activity space requirements revealed there was not enough space for dressing and undressing, for the preferred arrangement of furniture, nor for the storage of clothing and bedding. No measurements were recommended.[19]

The Farmhouse Planning Guides gave the following clearances at the side and at the end of the bed:[20]

CLEARANCES REQUIRED AT SIDE AND END OF BED

Activity	Dimensions			
	Women		Men	
	End	Side	End	Side
		inches		
Sitting on the bed		12		14 1/2
Getting up from the bed		14		18 3/4
Make bed	13 1/2	22 1/2	18	30 3/4
Cleaning under bed				
(minimum)		44		
(maximum)		51		

[18]Federal Housing Administration, op. cit., p. 32.

[19]"Family Behavior, Attitudes, and Possessions," The Architectual Forum (New York; John B. Pierce Foundation, June 1944).

[20]Farmhouse Planning Guides, op. cit., p. 29.

In a study done by Kathryn Philson, the recommended inside depths of the clothes closets were twenty four to twenty eight inches for garments other than coats, and twenty six to thirty inches for a coat closet. Shelving, hooks, and special racks in the closets added to the convenience by providing space for storing hats, shoes, ties, belts, and other items. The rod length recommended per person was based on the level of clothes ownership. The amount for the minimum level was three to three and one-half feet, for the moderate level was four to four and one-half feet, and for the liberal level was four and one-half to five and one-half feet per person.[21]

The minimum space requirements recommended by Helen McCullough for hanging clothing storage were:[22]

MEASUREMENTS FOR HANGING CLOTHING STORAGE

	Dimensions inches
Length per person	48
Depth for garment on hangers	24
Per woman's garment	2
Per man's garment	2½
Per heavy coat	4

[21]Kathryn Philson, Rod Closets for Southern Farm Homes Agricultural Experiment Station, Bulletin 325, Auburn University, 1960) pp. 18-19.

[22]Helen E. McCullough, Space Design for Household Storage (University of Illinois Agricultural Experiment Station, Bulletin 557, August 1952), p. 35.

The limited to liberal length for clothing storage dimensions for four different arrangements of clothing storage in Northeastern farmhouses were:[23]

LIMITED AND LIBERAL DIMENSIONS FOR FOUR ARRANGEMENTS OF CLOTHING STORAGE FACILITIES IN 2-, 3-, AND 4-BEDROOM HOUSES

Location of storage	Limited to liberal dimensions
2-, 3-, and 4-bedroom houses	feet
Length of rod in	
Master bedroom	
Wife's closet	2½ to 5½
Husband's closet*	3½ to 5½
Bedroom #2	6½ to 12
Bedroom #3	6 to 11
Bedroom #4	6 to 11
2-bedroom houses	
Coat closet	3½ to 4
Closet for out-of-season garments	2½ to 4
3-bedroom houses	
Coat closet	4 to 5½
Closet for out-of-season garments	2½ to 5½
4-bedroom houses	
Coat closet	4½ to 6½
Closet for out-of-season garments	2½ to 7

*Length of rod in husband's closet can be decreased 1 ft. if clean work shirts are stored in drawers; decreased 2 ft. if neither dress nor work shirts are stored on hangers.

The literature on bedrooms reviewed indicated that the recommended measurements for limited length for closets ranged from three to six feet, and a limited width of two feet. The liberal length of closets ranged from four and one-half to twelve feet, and a liberal width of two feet and four inches. The limited square footage for clothes storage ranged from six to twelve square feet and the liberal square footage ranged from ten and one-half to twenty eight square feet.

[23] Farmhouse Planning Guides, op. cit., p. 30.

The 1959 Federal Housing Administration minimum storage space requirements for closets were two feet for the depth of the closets and three feet for the length of the closets in each bedroom. In other words, six square feet of closet space for clothing storage is required in each bedroom. The same dimensions were required for the coat closet.[24]

The size of the bedroom recommended by research workers was difficult to ascertain.

The 1959 Federal Housing Administration total minimum space requirements for bedrooms were:[25]

FHA MINIMUM STANDARDS FOR ALL BEDROOMS

Number of bedrooms	Size
	square feet
One	120
Two	200
Three	280
Four	380
For a bedroom in the two, three, or four bedroom living unit	80

The Farmhouse Planning Guides included the following minimum and adequate floor space requirements at the different bathroom fixtures.[26]

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[24]Federal Housing Administration, op. cit., p. 34.

[25]Ibid., p. 32.

[26]Farmhouse Planning Guides, op. cit., pp. 26-27.

SPACE REQUIRED AT THE BATHROOM FIXTURES

Measurements		Dimensions	
		Minimum	Adequate*
		inches	
Lavatory			
Width:	Center axis to		
	adjacent wall at left	18	
	adjacent wall at right	20	
Depth:	Front clearance to		
	opposite wall	34	
	opposite tub	24	30
Tub			
Width:	Parallel to side of tub	30	
Depth:	Side of tub to		
	opposite wall	30	34
	center axis of adjacent		
	toilet	16	18
Toilet			
Width:	Center axis to		
	side of 18-inch-deep		
	lavatory	--	14
	side of 22-inch-deep		
	lavatory	14	16
	side of tub	14	18
	end of tub	14	16
Depth:	Front of bowl rim to		
	opposite tub	--	24
	opposite lavatory	24	30
	opposite wall	--	30

*Used by one person.

The Home and Garden Bulletin, Your Farmhouse--Planning the Bathroom recommended an allowance of four inches between the closet tank and lavatory, three inches between the closet tank and tub, four inches between the closet tank and sidewall, and six inches between the lavatory and side wall. A minimum of one and one-half feet should be allowed between the fronts of the water closet and lavatory and a

minimum of two to two and one-half feet between the fronts of other bathroom equipment.[27]

The pamphlet, The Essentials of A Good Bathroom, recommended that the minimum bathroom size to include a tub instead of a shower was five by seven feet. However, a bathroom six feet by seven or eight feet was considered better. Enough space should be left between the fixtures to move around them and to clean them easily. At least one and one-half feet were recommended between the front of any fixture and the wall across from it. The minimum floor area of thirty by twenty inches was needed beside the tub for a person cleaning it. At least three inches were required between the closet tank and the wall at the side of it and six inches between the lavatory and the wall.[28]

Depending on the type of fixtures and whether or not one fixture was opposite another fixture or a wall, the recommended front clearance for the fixtures ranged from one and one-half to two feet.

The Federal Housing Administration required that the bathroom be adequate for a toilet, lavatory, and a tub or a shower. The fixtures were arranged to provide for the comfortable use of each fixture and to permit at least a ninety degree door swing. The floor clearance between

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[27]Your Farmhouse--Planning the Bathroom (Home and Garden Bulletin, No. 19).

[28]The Essentials of a Good Bathroom (Agricultural Extensions Service University of Arkansas, College of Agriculture and Home Economics and United States Department of Agriculture, Leaflet No. 228, 1956), p. 1.

the front of fixtures and an opposite fixture or wall was one foot nine inches in front of the water closet and in front of the lavatory.[29]

The measurements recommended in the literature reviewed indicated that the minimum size bathroom with a tub was five by seven feet (thirty five square feet). A bathroom of six by seven feet (forty three square feet) was considered better.

Family Room and Living Room

Only a few studies have been concerned with family room and living room requirements.

Thelma Hinson suggested among other things, that the family room should be at least fourteen feet in width and provide sufficient and convenient storage space. No other measurements were given.[30]

The 1959 Federal Housing Administration minimum floor requirements for living rooms were:

FHA MINIMUM LIVING ROOM STANDARDS

Number of bedrooms	Sizes
	square feet
One or two	160
Three	170
Four	180

The least width allowed for the living room was eleven feet.[31]

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[29]Federal Housing Administration, op. cit., pp. 32-33.

[30]Thelma Lee Hinson, "The Use of The Family Room for Individual and Group Activities" (unpublished Master's thesis, The Woman's College of the University of North Carolina, Greensboro, 1959), pp. 69-70.

[31]Federal Housing Administration, op. cit., p. 32.

Childern's Play Centers and Toy Storage

Planning Guides for Southern Rural Homes suggested that the location of play centers vary with the needs of the family as well as with the plan of the house. One fourth of the floor space of the child's play center should be allotted for play equipment. The width of the play center should not be less than three and one-half feet. The recommended space for the play center was:[32]

TOTAL FLOOR SPACE FOR PRESCHOOL CHILDREN'S PLAY BY NUMBER OF SOCIAL ROOMS IN THE HOUSE

Number of social rooms in the house	Floor space		
	Minimum	Moderate	Liberal
	square feet		
None	35	50	
One	35	50	70
Two		70	90
Three or four		90	170 or more

SUGGESTED SIZE OF SEPARATE PLAY AREAS BY LOCATION

Location in house	Floor space		
	Minimum	Moderate	Liberal
	square feet		
Bedroom-living room	35	50	
Kitchen-utility area (including utility porches)	20	35	50
Family social room (den or similar room)	20	50	70
Child's bedroom	20	50	70

Space Standards for Home Planners stated that preschool children play most frequently in three rooms--the kitchen, living room, and their bedroom. It was suggested that in the kitchen there be seven square feet of floor area for play and one and one-half square feet

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[32]Planning Guides for Southern Rural Homes, op. cit., pp. 61-63.

of low shelf space for the storage of toys. In the living room, thirteen and one-half square feet of floor area were recommended for play and shelves eleven by eight to thirty six inches were recommended for low shelf storage of toys. In the child's sleeping area, fifteen to twenty square feet of floor area were recommended for play and shelves eleven by forty eight to sixty inches were recommended for low shelf storage of toys. One-half square foot of shelf space was recommended for toy storage in the bathing area.[33]

The recommended space for toy storage ranged from 8.75 to 17.50 square feet. The recommended space for children's play centers ranged from 13.50 to 170.00 square feet.

Household Textile Storage

Avis M. Woolrich, Mary M. White, and Margaret A. Richards of the United States Department of Agriculture established basic dimensions of the commonly used kinds and sizes of household textiles as they are stored, and determined the measurements of storage facilities needed for the kinds and quantities of household textiles owned by specified portions of farm families in all regions of the country. It was found that more handling room was needed above fixed shelves than above sliding shelves, drawers, and trays, since the latter can be pulled out and away from the confining shelf above. As a result, most storage facilities equipped with movable surfaces required fifteen to thirty per cent less vertical space than do those with fixed shelves. Using a module of four

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[33]Space Standards for Home Planners, op. cit., D-1, pp. 1-2.

inches, it was determined that the depth of storage surfaces for bath linens required twelve to sixteen inches, bed linens required twelve to sixteen inches, bed linens required twelve and sixteen inches, bed covers required sixteen, twenty, twenty four, or twenty eight inches, and table linens required sixteen to twenty inches. Twelve inches was considered as the minimum depth, twenty eight inches the maximum. The width dimension was reported as a range. Any specific dimensions for the width that fell within the range could be used when a storage facility was planned. Because the upper limit of the range represented comparatively extravagant use of wall space, it was advised only for the unusal situations. Widths that fell between the middle and lower limits were recommended.[34]

DIMENSIONS OF STORAGE FACILITIES FOR LIMITED AND LIBERAL SUPPLIES OF HOUSEHOLD TEXTILES

Item-stored Alone	Limited Amount			Liberal Amount		
	Depth of Surface	Width of Surface	Surfaces Required	Depth of Surface	Width of Surface	Surfaces Required
	inches	inches	number	inches	inches	number
Bath Linens	12	18 to 22	2	12	26	3
	16	28 to 34	1		36	2
		18 to 22	2	16	18 to 24	3
					28 to 34	2
Bed Linens	12	24 to 30	2	12	24 to 36	3
	16	30 to 38	1	16	26 to 32	2
		18 to 22	2			
Bedcovers	16	22 to 38	5	20	30 to 44	4
	20	26 to 38	4	24	28 to 38	6
	24	22 to 38	5	28	28 to 26	6
	28	26	5		50	3

[34]Avis M. Woolrich, Mary M. White, and Margaret A. Richards, Storage Space Requirements for Household Textiles (United States Department of Agriculture, Agricultural Research Service, 1955) pp. 25-29.

TABLE (continued)

Kitchen Linens	12	26	2	12	32 to 30	2
		18 to 20	3		24 to 22	3
	16	24 to 26	2	16	24 to 30	2
					18 to 22	3
	20	22 to 26	2	20	22 to 30	2
		16 to 20	3		16 to 22	3
Table Linens	16	22 to 40	2	16	22 to 38	6
	20	20 to 30	2	20	26 to 40	4
All Linens and Bedcovers stored together	16	30 to 44	8	16	28 to 38	15
					38 to 48	12
	20	40 to 50	6	20	36 to 50	10
		28 to 38	9		28 to 40	13

Space Standards for Home Planners recommended measurements for the storage for household textiles were:[35]

HOUSEHOLD TEXTILE STORAGE

Number of drawers, shelves, and/or sliding shelves for:	Dimensions	
	Width	Length
	inches	
Kitchen linens		
3 drawers	20	16
Table linens		
2 to 6 sliding shelves	16 or 20	22 or 26
Bath linens		
3 shelves	16	18
Bedding		
5 to 6 shelves	20	26 or 38
Central linen storage		
6 to 15 shelves	16 or 20	28 or 40

The square footage recommended for a limited amount of linen in a central linen storage space ranged from 4.10 to 6.92 square feet. The number of recommended surfaces ranged from 6.00 to 15.00 square feet.

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[35] Space Standards for Home Planners, op. cit., I-1 pp. 1-6.

The Federal Housing Administration required that the linen closet be near the bedrooms and have a minimum depth of fourteen inches and a minimum width of eighteen inches, approximateley two square feet (1.76 square feet) of floor space.[36]

Utility Room or Area

A study on home laundering by Betty Jane Johnson, indicated that possibly the absence of adequate work and storage facilities near the washer influenced homemakers to move some of the laundry activities and storage to another location. About a third of these homemakers had no storage space near the washer for the supplies used there. Thirty-five per cent had no work space near their washers. Few of these homes had good storage space for the ironing board, iron, and other laundry equipment. Fewer than one-half of the homemakers could store the ironing board near the room in which they ironed.[37]

In 1952, Helen E. McCullough studied the amount of space needed to accommodate and to use the various kinds of equipment available for the home laundry. The emphasis of this study was the relation between the floor space for the equipment and the size and work habits of the homemakers. It was found that the minimum and maximum floor space requirement of laundry equipment in use was:[38]

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[36]Federal Housing Administration, op. cit., p. 34.

[37]Betty Jane Johnson, "Home Laundering," Journal of Home Economics, 50:1, January 1958, pp. 38-39.

[38]Helen E. McCullough, "A Preliminary Report on Space Requirements For The Home Laundry," Journal of Home Economics, 44:6, June 1952, p. 429.

SPACE REQUIREMENTS FOR LAUNDRY EQUIPMENT IN USE

Equipment	Minimum Recommended	Maximum Needed
Automatic washer, basket (top-opening)	3'-7"x5'-1" 18 sq. ft.	3'-10"x5'-5" 21 sq. ft.
(front-opening)	3'-7"x5'-4" 19 sq. ft.	3'-7"x5'-9" 21 sq. ft.
Electric dryer, basket	3'-6"x5'-1" 18 sq. ft.	3'-9"x5'-5" 20 sq. ft.
Sorting counter, basket	5'-0"x4'-8" 23.5 sq. ft.	5'-0"x5'-0" 25 sq. ft.
Ironing board only	5'-9"x3'-9" 21.5 sq. ft.	5'-9"x4'-0" 23 sq. ft.

Sinden and Johnston found the following measurements were required for body clearance when using different types of washers:

CLEARANCE REQUIRED FOR WORKERS USING WASHERS

Types of washer and location	Measurements inches
In front of top-opening automatic washer	27
In front of side-opening automatic washer	35
Basket beside washer	12
In front of automatic dryer	30
To side front of right hinged door dryer	16
In front of slant-opening door dryer	33
To side front of slant-opening, drop-door type	13

The arrangements of the automatic washer and dryer influenced the amount of floor space required for working space. Sinden and Johnston placed the washer and dryer at different angles and found that the 135 degree angle rated higher with the homemakers than did the ninety degree angle arrangement. The clear floor space required in front of the equipment was about three by five feet for the 135

degree angle arrangement and three and one-half by four feet was required in front of the equipment for the ninety degree angle arrangement. The straight line arrangement required a working space of about three by five and one-half feet. A stacked washer and dryer arrangement required approximately three by three and one-half feet and the least installation space.[39]

Space Standards for Home Planners stated the clearance needed in front of different laundry equipment was:[40]

CLEARANCES IN FRONT OF LAUNDRY EQUIPMENT

Type of equipment	Measurements inches
Washer-dryer combination	38 to 42
A washer and a dryer	36 to 40
A single washer	32 to 36
A single dryer	38 to 44
A laundry table	36
Between the fronts of the washer and the dryer and the laundry table	48 to 60

Planning Guides for Southern Rural Homes suggested the following measurements for storage and laundry activities in the utility room:

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[39]Cecil P. Sinden and Kathleen A. Johnston, Space for Home Laundering (Pennsylvania Agricultural Experiment Station, Bulletin 658, Pennsylvania: University Park, 1959), p. 35-37.

[40]Space Standards for Home Planners, op. cit., G-2, pp. 1-3.

MEASUREMENTS FOR STORAGE AND LAUNDRY ACTIVITIES

	Measurements		
	Width		Depth
	Limited	Liberal	
	inches		
Storage	24		25
Soiled clothes (stored)	25		25
Clean clothes (stored)	21		25
Sorting soiled clothing loads (counter requirements)	24	46	25
Folding clean, dry articles (counter requirements)	20	30	25

A clearance of three to four feet was recommended in front of a top-opening washer and a front-opening dryer. A clearance of three feet between the fronts of the washer and laundry table was recommended.[41]

In summary, these studies suggest from seventeen to twenty one square feet for the use of an automatic washer and a basket, and from seventeen to twenty square feet for the use of a dryer. Storage space recommendations for laundry areas were difficult to interpret into square footage of floor space.

The Federal Housing Administration required that the laundry room provide enough space for the washing equipment, its maintenance and use.[42]

Homemakers were given a chance to express what features they wanted in a house of undetermined size at the 1956 Woman's Congress on Housing. Significant attention was given to space--adequate, better

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[41] Planning Guides for Southern Rural Homes, op. cit., pp. 57-60.

[42] Federal Housing Administration, op. cit., p. 34.

planned, and better located space as the basic essential for satisfactory living. It was resolved that adequate space for activities and storage was so important that many of the women were willing to accept the inconvenience of stairs in two-story houses and to sacrifice labor-saving appliances, at least for a period of time, in order to secure more space. The kitchen was recognized as the most important room in the house, both in function and location.[43]

The women expressed the following minimum and desirable room and closet sizes:[44]

MINIMUM AND DESIRABLE ROOM AND CLOSET SIZES

Room or Closet	Sizes			
	Minimum		Desirable	
	feet	square feet	feet	square feet
Kitchen and Dining area	8x12	96	12x20	240
Kitchen and Family room	12x14	168	14x24	288
Laundry-utility	6x9	54	8x14	112
First bedroom	10x12	120	14x16	224
Second bedroom	10x11	110	14x16	224
Third bedroom	8x11	88	14x16	224
Guest coat closet	2x3	6	2½x5	12½
First bedroom closet or closets	2x6	12	(2) 3x6	36

[43]Albert M. Cole, Woman's Congress on Housing (Washington: Housing and Home Finance Agency, October 1956), p. 2.

[44]Ibid., p. 20.

TABLE (continued)

Second and third bedroom closet or closets	2x5	10	(2)2½x5	25
First full bath	5x7	35	8x10	80
Second full bath	5x7	35	5x8	40
Half bath	3x3	9	6x8	48
Storage	5x7	35	4x20	80

A similar forum was conducted by the Stanley Edge Associates at the Fourth Annual National Executive Marketing Conference of the Home Building Industry. Suggestions were made for more activity and storage space to meet the needs of today's families. However, no measurements were given.

This review of literature indicated that the storage and space recommendations for particular rooms or areas were based mainly on laboratory studies. To the writer's knowledge there are no actual home situation studies concerning the measurements which homemakers, who live in small houses, would prefer for storage space and open space in small houses.

CHAPTER III

METHOD

An interview was held with each of twenty homemakers in the speculative built house in which she lived. Questionnaires filled out by the writer during these interviews provided the basic data for this study. Both the house plans and the families were carefully selected to conform to the purpose of this study.

Four Greensboro speculative builders cooperated with this study. They provided speculative house plans from which ten house plans with different room arrangements were chosen. The builders provided the blue prints to use during the interviews.

It was decided that only small houses, similar in size would be included in this study. Since the majority of the houses built are small and since these small houses present problems in planning for livability, homemakers who were living in such small houses were asked to express their preferences for space divisions. The selection of houses was controlled by limiting the total square footage. All of the plans chosen ranged from 1014.17 to 1284.03 square feet. The purpose for this limitation was to control the influences of the size of the house on the results.

All of the plans selected had the same kind and number of rooms or areas--a living room, a kitchen, a dining area in the kitchen, three bedrooms, one bathroom, a hall, an outside storage-utility area, and no carport and no basement. The purpose for this limitation was to control the influences of the number of rooms or areas in the house

on the results. The following were how the sum of living space and storage space of the same rooms for the ten plans varied in size:

	Square feet
Living room	189.28 to 288.87
Kitchen	59.57 to 86.70
Dining area in kitchen	50.61 to 184.43
Bedroom I	101.63 to 173.12
Bedroom II	114.84 to 159.54
Bedroom III	106.59 to 150.24
Bathroom	35.00 to 69.36
Hall	38.56 to 111.88
Outside storage-utility area	27.69 to 97.23

Since the housing needs of different sizes of families vary, this study was limited to one size of family, a four member household, consisting of a father, a mother and two children. Due to the limitations in the availability of small houses with families having two children and to the time limitations of the study, it was not possible to include more than two families living in alike houses. It was further planned that the ages and the sex of the children would be controlled, but due to the limitations in the availability of families with two children, these factors could not be controlled. The purpose for controlling the size of the families was so that the size of the family would not influence the results.

A sample of the questionnaire used during the interviews may be found in the appendix, page 89. Some data describing the families' occupations, ages of the children, and length of occupancy in the house were recorded. The house plan of each house being studied was used with the questionnaire to enable the homemakers to see the changes that she wanted to make.

The focus of this study is on the suggested changes of the homemakers in the open space and storage space divisions in small houses, rather than a desire for a larger more expensive house. To accomplish this, the homemaker was not allowed to increase the outside dimensions of her house when suggesting the desired changes in the living space and storage space divisions.

This study was concerned with square footage, therefore the lengths and widths of the housing spaces were carefully measured.

Since the kitchen appliances, the furnace, the washer, the dryer, the hot water heater, and the sink are not considered as either storage space or open space, the space which they occupied in a particular room was subtracted from the total open space or storage space of that room. In order to distinguish between the open space of the kitchen and the open space of the dining area in the kitchen, each plan had to be carefully measured and the open space divided between the two. Half of the space taken by any door that entered both the dining area in the kitchen, and the kitchen was counted for each area. One third of the built-in sink area was considered as storage, since some space directly under the sink could be used for storage. Thicknesses for the outside walls and the inside walls were subtracted from the total square footage of the house, since they can be considered neither as storage space nor open space. The total usable square footage for the houses studied ranged from 862.00 to 1044.93 square feet.

Changes in the square footage of living space and storage space desired by the homemakers were recorded for each room or area of the house. The total of all the changes were recorded on a summary sheet. Data concerning the three rooms the homemakers would like to have near each specific room or area, the front door and the back door, and the room they would prefer to use as a passageway was also recorded and analyzed.

The analysis of variance was used to test the hypotheses that the homemaker's suggested changes in amount of storage and open floor space were not associated with (1) differences between the house plans, and (2) differences between the sizes of rooms or areas as compared with family preferences. The law of probability was used to determine whether the number of times a room was chosen to be near each specific room, the front door, the back door, and the room chosen to be used as a passageway was greater than chance.

Some terms which will be used throughout the study are:

1. Speculative-built houses are houses built for an unknown occupant and are sold after they have been planned and built.
2. Open space is that floor space which is not used for built-in storage or for equipment, but rather for activities of individuals and space for movement.
3. Storage space is that floor space used for built-in storage, such as closets, cabinets, and shelves.
4. Existing spaces are the square footages as built.

5. Suggested space alterations are square footages of the changes suggested by the homemakers.

6. Adjusted spaces are combined existing spaces plus or minus suggested space alterations.

CHAPTER IV

FINDINGS

I. DESCRIPTIVE ANALYSIS OF DATA

The Families

Twenty families, each composed of two children and a mother and a father, cooperated in this study. The children varied in age from nine months to twelve years, with an average age of 5.06 years. There were twenty one boys and nineteen girls (Table I).

TABLE I

AGES AND NUMBER OF CHILDREN

Years	Number	
	Boys	Girls
1 and under	2	2
2 to 5	12	8
6 to 9	4	9
10 and over	3	0

All of the husbands were employed. Their occupations ranged from pharamicist and engineers to electricians and plasterers. Four of the homemakers had full time employment outside the home. One was employed part time.

Sixty five per cent of the families had lived in the house for less than one year. Thirty five per cent had lived in the house from one to four years.

The Houses

The houses studied had a kitchen, a dining area in the kitchen, a living room, three bedrooms, a hall, an outside storage-utility area,

and one bathroom. None of the houses had a carport or a basement. The overall size of the houses including space for the walls ranged from 1014.17 to 1284.03 square feet with an average of 1186.65 square feet. After the space for the walls had been subtracted, the total usable space ranged from 862.00 to 1044.93 square feet with an average of 954.94 square feet.

In order to clearly describe the expressed changes of the twenty homemakers in the ten house plans studied, each of the rooms or areas will be considered separately in the remainder of this chapter.

The Kitchens

Storage space. All of the twenty homemakers wanted more floor space allocated for storage space in the kitchen and in the adjacent dining area in the kitchen. This storage space included space for the storage of dishes in the dining area or in the kitchen, whichever the homemaker preferred. The amount of additional storage space suggested by the homemakers ranged from about five to thirty one square feet (5.13 to 31.25 square feet). Excluding the upper extreme, the additional storage wanted was up to fifteen and one-half square feet (15.50 square feet) (Table II).

By adding the additional amount wanted to what already existed, the total wanted storage spaces were calculated.

The average of the amount of kitchen storage space wanted by the two homemakers in alike houses ranged from about fifteen to forty four square feet (15.15 to 44.25 square feet) for the ten houses studied. The average amount of storage space suggested was 27.32 square feet (Table II).

TABLE II

KITCHEN FLOOR SPACE PROVIDED BY TEN DIFFERENT HOUSE PLANS INCLUDING AVERAGE CHANGES SUGGESTED BY TWO HOMEMAKERS LIVING IN EACH OF THE DIFFERENT HOUSE PLANS

House Plans	Existing Space: Open Space	Storage Space	Total[1] Space	Suggested Space Alterations: Kit. Open	Kit. Storage	Kit.-Din. Storage	Total Space	Adjusted Space: Open Space	Storage Space	Total[1] Space
				square feet						
A	38.28	10.34	68.37	-2.50	13.50	2.00	15.50	35.78	25.84	81.37
B	23.82	16.00	59.57	2.64	6.50	7.25	13.75	26.46	29.75	75.96
C	34.35	19.24	73.34	-2.25	4.13	1.00	5.13	32.10	24.37	76.22
D	34.72	13.00	67.47	-7.14	21.00	10.25	31.25	27.58	44.25	91.58
E	27.21	20.05	65.63	0.00	12.00	0.00	12.00	27.21	32.05	77.63
F	54.29	12.66	86.70	-6.50	6.50	0.00	6.50	47.79	19.16	86.70
G	40.06	13.66	73.47	-1.50	6.87	5.00	11.87	38.56	25.53	83.84
H	35.08	16.64	71.47	-4.24	9.50	1.00	10.50	31.33	27.14	77.72
I	34.93	16.00	70.68	-2.50	7.17	6.83	14.00	32.43	30.00	80.18
J	42.89	10.82	72.35	4.50	4.33	1.00	5.33	47.39	15.15	81.17
Range	23.82 to 54.29	10.34 to 20.05	59.57 to 86.70	-7.14 to 4.50	4.13 to 21.00	0.00 to 10.25	5.13 to 31.25	26.46 to 47.79	15.15 to 44.25	75.96 to 91.58
Ave.	36.56	14.84	70.91	-1.95	9.15	3.43	12.58	34.66	27.32	81.24

[1]Total includes about 19 square feet allowed for kitchen appliances.

If less than twenty seven square feet were provided the projected needs of only ten of the homemakers would be met. Thirty two square feet of storage space would satisfy the homemakers' suggestions for the kitchen storage space for all but two of the twenty homemakers studied.

These data suggest that small houses need a total of at least thirty square feet of floor space for storage within the kitchen and the dining area in the kitchen if the projected needs of the majority of the homemakers are to be met. In other words, at least fifteen linear feet of wall and of base cabinet storage is needed for kitchen and adjacent dining area storage in the kitchen according to homemakers who live in small houses. However, if six square feet of storage space were provided in the dining area in the kitchen, then only twenty four square feet of storage would be needed in the kitchen. This square footage does not include space for a refrigerator, a range, or a sink.

Open space. Remembering that the homemakers could not suggest that the overall size of the house be altered, the majority of the homemakers were willing to give up a little of the open space in the kitchen for additional storage. On the average the homemakers were willing to use two square feet of open kitchen space for additional storage. Since this average figure is only a small portion of the average twelve and one-half square feet of additional storage space wanted, it is evident that the additional kitchen storage space must come from some other part of the house. Some of the small dining area in the kitchen was given up by over half of the homemakers for more kitchen storage space.

The homemakers wanted from about twenty seven to forty eight square feet (26.46 to 47.79 square feet) of open floor space in the kitchen, with an average of 34.66 square feet (Table II).

Because of the suggested increase in the kitchen storage space, all but one of the kitchens increased in total size. The total size suggested for the ten kitchens including storage, appliances, and open space, ranged from about seventy six to ninety two square feet (75.96 to 91.58 square feet). The second largest kitchen wanted was eighty seven square feet (86.70 square feet). The average size for the kitchens wanted was eighty one square feet (81.24 square feet) (Table II).

A kitchen eighty seven square feet in size would meet the projected needs of all but two of the homemakers. A kitchen smaller than seventy six square feet would satisfy only two of the homemakers studied.

These data indicate that a kitchen of approximately eighty four square feet is needed in a small three bedroom house in order to satisfy the majority of the homemakers studied. This space includes the thirty square feet wanted for storage, approximately nineteen square feet for the three major kitchen appliances and the remainder for open space.

All the twenty homemakers wanted more storage in the kitchen area. These data suggest that additional kitchen storage would make small houses more satisfying to homemakers.

The Dining Area In The Kitchens

Storage space. The majority of the homemakers wanted some storage space in the dining area in the kitchen. None of these dining areas had

any storage space. The amount of additional storage space suggested ranged from zero to ten square feet (0.00 to 10.25 square feet). Excluding the upper extreme, the additional storage wanted was seven square feet (7.25 square feet), with an average of three and one-half square feet (Table III).

Since no dining area storage space in the kitchen was provided originally, the suggested alterations and the adjusted storage space wanted by the two homemakers in alike houses were the same.

Seven square feet of storage space in the dining area in the kitchen would satisfy all but two of the homemakers. Less than one square foot of storage would meet the projected needs of only half of the homemakers.

These data suggest that not less than six square feet of floor space for storage space are needed in the dining area in the kitchen if the projected needs of the majority of the homemakers studied are to be met. In other words, at least three linear feet of wall and of base cabinet storage is needed for dining area storage in the kitchen according to the homemakers who live in small three bedroom houses.

If at least six square feet of storage space is provided in the dining area in the kitchen, this space would be subtracted from the thirty square feet of storage space suggested for kitchen-storage. These data indicate that thirty square feet of storage space is needed in the kitchen and dining area in the kitchen combined in order to provide for the projected storage needs of the homemakers in both the kitchen and the dining area in the kitchen.

TABLE III

DINING FLOOR SPACE IN THE KITCHEN PROVIDED BY TEN DIFFERENT HOUSE PLANS INCLUDING AVERAGE CHANGES SUGGESTED BY TWO HOMEMAKERS LIVING IN EACH OF THE DIFFERENT HOUSE PLANS

House Plans	Existing Space			Suggested Space Alterations		Adjusted Space		
	Open Space	Storage Space	Total Space	Open Space	Storage Space	Open Space	Storage Space	Total Space
	square feet							
A	92.99	0.00	92.99	-13.00	2.00	79.99	2.00	81.99
B	59.35	0.00	59.35	- 4.00	7.25	55.35	7.25	62.60
C	68.87	0.00	68.87	- 1.00	1.00	67.87	1.00	68.87
D	140.85	0.00	140.85	-19.23	10.25	121.62	10.25	131.87
E	184.43	0.00	184.43	-12.00	0.00	172.43	0.00	172.43
F	53.25	0.00	53.25	0.00	0.00	53.25	0.00	53.25
G	56.66	0.00	56.66	2.53	5.00	59.19	5.00	64.19
H	50.61	0.00	50.61	- 6.25	1.00	44.35	1.00	45.35
I	102.81	0.00	102.81	-11.50	6.83	91.31	6.83	98.14
J	72.99	0.00	72.99	- 3.00	1.00	69.99	1.00	70.99
Range	50.61 to 184.43	0.00 to 0.00	50.61 to 184.43	-19.23 to 2.53	0.00 to 10.25	44.35 to 172.43	0.00 to 10.00	45.35 to 172.43
Ave.	88.28	0.00	88.28	- 6.74	3.43	81.54	3.43	84.97

Open space. Since the overall size of the house could not be altered, the majority of the homemakers were willing to give up some of the open space in the dining area in the kitchen for storage. The homemakers were willing to use an average of about seven square feet of open dining area in the kitchen for storage space. Three and one-half square feet of this space were suggested to be used for dining area storage in the kitchen, and the remainder used for additional kitchen storage space. (Table III).

The homemakers wanted from about forty four to one hundred seventy two and one-half square feet of open floor space, with an average of eighty one and one-half square feet of open space in the dining area in the kitchen (Table III).

Because of the suggested use of some of the open floor space for kitchen storage space rather than for dining storage space in the kitchen, all but one of the dining areas in the kitchen decreased in size. The total size suggested for the ten dining areas in the kitchen, including storage space, ranged from forty five to one hundred seventy two square feet (45.35 to 172.43 square feet). The second largest dining area in the kitchen wanted was about one hundred thirty two square feet (131.87 square feet). The average size for the dining area in the kitchen wanted was about eighty five square feet (84.97 square feet) (Table III).

A dining area in the kitchen one hundred thirty two square feet would satisfy the needs of all but two of the homemakers. A dining area in the kitchen less than seventy square feet would meet the expressed needs of only half of the homemakers.

These data point out that a dining area in the kitchen of approximately ninety six to ninety eight square feet is needed in a small three bedroom house in order to satisfy the majority of the homemakers studied. This space includes six square feet of dining storage space in the kitchen.

The Living Rooms

Storage space. Although the majority of the homemakers were satisfied with the amount of storage space provided in the living room of these small houses, the amount of additional storage space suggested by the homemakers was up to six square feet, with an average of about two square feet (1.79 square feet) (Table IV).

The total living room storage space wanted by the two homemakers in alike houses ranged from three to sixteen square feet (3.12 to 15.90 square feet) for the ten houses studied. Excluding the two extremes, these storage spaces ranged from six to eleven square feet, with an average of eight square feet of storage space wanted (Table IV).

Eleven square feet of storage space would satisfy the living room storage suggestions for all but two of the twenty homemakers. If less than six square feet were provided only two of the homemakers would be satisfied.

These data suggest that preferably ten square feet and at least eight square feet of floor space is needed for storage space in the living rooms of small three bedroom houses, if the projected needs of the majority of the homemakers studied are to be met.

TABLE IV

LIVING ROOM FLOOR SPACE PROVIDED BY TEN DIFFERENT HOUSE PLANS INCLUDING AVERAGE CHANGES SUGGESTED BY TWO HOMEMAKERS LIVING IN EACH OF THE DIFFERENT HOUSE PLANS

	Existing Space			Suggested Space Alterations		Adjusted Space		
House Plans	Open Space	Storage Space	Total Space	Open Space	Storage Space	Open Space	Storage Space	Total Space
				square feet				
A	219.47	7.76	227.23	- 3.25	3.25	216.22	11.01	227.23
B	226.78	7.50	234.28	-16.89	0.00	209.89	7.50	217.39
C	189.28	0.00	189.28	- 4.42	3.12	184.86	3.12	187.98
D	278.47	10.40	288.87	-12.50	5.50	265.97	15.90	281.87
E	241.05	6.41	247.46	-10.34	0.00	230.71	6.41	237.12
F	205.01	9.88	214.89	10.33	0.00	215.34	9.88	225.22
G	229.15	0.00	229.15	-26.24	6.00	202.91	6.00	208.91
H	204.00	9.32	213.32	8.75	0.00	212.75	9.32	222.07
I	187.79	6.41	194.20	0.00	0.00	187.79	6.41	194.20
J	204.47	6.24	210.71	5.08	0.00	209.55	6.24	215.79
Range	187.79 to 278.47	0.00 to 10.40	189.28 to 288.87	-16.89 to 10.33	0.00 to 6.00	184.86 to 265.97	3.12 to 15.90	187.98 to 281.87
Ave.	218.55	6.39	224.94	- 4.95	1.79	213.60	8.18	221.78

Open space. Since the overall size of the house could not be altered, less than half of the homemakers increased the size of their living room. The majority of the homemakers were willing to give up a little of the existing open floor space in their living rooms to add to some other room or area in the house. On the average, the homemakers were willing to give up approximately five square feet of open living room floor space (Table IV).

The open living room floor space wanted by the homemakers ranged from one hundred eighty five to two hundred sixty six square feet (184.86 to 265.97 square feet), with an average of two hundred fourteen square feet (213.60 square feet). Excluding the largest living room, the second largest was two hundred thirty square feet (Table IV).

These data indicate that a living room with two hundred thirty square feet of open floor space would satisfy all but two of the homemakers. Only four of the homemakers would be satisfied with less than one hundred ninety square feet of open floor space in the living room.

These data suggest that a living room with approximately two hundred twenty square feet of open floor space was desired in a small three bedroom house by the majority of the homemakers studied. Including the ten square feet of floor space wanted for storage space, the total size of the living room would need to be at least two hundred twenty seven square feet and preferably two hundred thirty square feet to meet the suggestions of most of the homemakers studied.

Bedroom I

Storage space. Half of the twenty homemakers wanted additional storage space in bedroom I for larger closets. The amount of additional storage space suggested by the homemakers ranged from about three to eight square feet, with an average of 2.30 square feet. Five square feet was the second largest additional amount of storage space wanted by the homemakers (Table V).

The adjusted total closet storage space wanted ranged from about ten to sixteen square feet (9.88 to 16.17 square feet) for the ten houses studied. The average total amount of storage space wanted in bedroom I was thirteen square feet (Table V).

Fifteen square feet of closet storage space in bedroom I would satisfy all but two of the homemakers, while less than ten square feet of closet storage space would satisfy only two of the homemakers (Table V).

These data indicate that preferably fifteen square feet and not less than thirteen square feet of closet storage space for bedroom I in small three bedroom houses would satisfy the majority of the homemakers studied.

Open space. Remembering that the overall size of the house could not be altered, half of the homemakers were willing to give up some of the floor space in bedroom I for more closet storage space in this room or for additional floor space in some other room in the house. On the average, three square feet of open floor space were given up in bedroom I (Table V).

TABLE V

BEDROOM I FLOOR SPACE PROVIDED BY TEN DIFFERENT HOUSE PLANS INCLUDING AVERAGE CHANGES SUGGESTED BY TWO HOMEMAKERS LIVING IN EACH OF THE DIFFERENT HOUSE PLANS

	Existing Space			Suggested Space Alterations		Adjusted Space		
House Plans	Open Space	Storage Space	Total Space	Open Space	Storage Space	Open Space	Storage Space	Total Space
				square feet				
A	122.08	11.25	133.33	0.00	0.00	122.08	11.25	133.33
B	136.87	15.66	152.53	0.00	0.00	136.87	15.66	152.53
C	95.39	6.24	101.63	-8.13	8.13	87.26	14.37	101.63
D	149.32	13.34	162.66	-5.91	2.83	143.41	16.17	159.58
E	137.50	10.57	148.07	0.00	3.75	137.50	14.32	151.82
F	127.37	8.32	135.69	-5.13	5.13	122.24	13.45	135.69
G	109.60	12.84	122.44	0.00	0.00	109.60	12.84	122.44
H	126.69	10.00	136.69	0.00	0.00	126.69	10.00	136.69
I	117.54	10.40	127.94	-8.32	3.12	109.22	13.52	122.74
J	163.24	9.88	173.12	-5.83	0.00	157.41	9.88	167.29
Range	95.39 to 163.24	6.24 to 15.66	101.63 to 173.12	-8.32 to 0.00	0.00 to 8.13	87.26 to 157.41	9.88 to 16.17	101.63 to 167.29
Ave.	128.56	10.85	139.41	-3.33	2.30	125.23	13.15	138.38

The homemakers wanted a total of eighty seven to one hundred fifty seven square feet of open floor space in bedroom I, with an average of one hundred twenty five square feet.

One hundred forty three square feet of open floor space in bedroom I would satisfy all but two of the homemakers. One hundred ten square feet of open floor space would satisfy only six of the homemakers (Table V).

These data suggest that in a small three bedroom house preferably one hundred thirty eight square feet and not less than one hundred thirty square feet of open floor space be in bedroom I, in order to satisfy the majority of these homemakers' projected needs. Including the fifteen square feet of closet space wanted by the homemakers, a total of one hundred fifty three square feet and not less than one hundred forty square feet of floor space for bedroom I is needed in small three bedroom houses to meet the suggestions of the majority of the homemakers studied.

Bedroom II

Storage space. Over half of the homemakers wanted more floor space allocated for closet storage space in bedroom II. The amount of additional storage space wanted ranged from one to six square feet (1.04 to 6.24 square feet), with an average of two additional square feet of floor space for closet storage space.

The adjusted total closet storage space wanted by the homemakers ranged from about eight to eighteen square feet for bedroom II. The average total amount of closet storage space suggested by the homemakers for this room was 12.70 square feet (Table VI).

TABLE VI

BEDROOM II FLOOR SPACE PROVIDED BY TEN DIFFERENT HOUSE PLANS INCLUDING AVERAGE CHANGES SUGGESTED BY TWO HOMEMAKERS LIVING IN EACH OF THE DIFFERENT HOUSE PLANS

House Plans	Existing Space			Suggested Space Alterations		Adjusted Space		
	Open Space	Storage Space	Total Space	Open Space	Storage Space	Open Space	Storage Space	Total Space
	square feet							
A	129.50	11.65	141.15	- 6.00	0.00	123.50	11.65	135.15
B	119.50	10.40	129.90	- 8.46	3.37	111.04	13.77	124.81
C	132.14	8.13	140.27	- 6.24	6.24	125.90	14.37	140.27
D	102.12	12.82	114.84	- 1.04	1.04	100.98	13.86	114.84
E	115.75	6.59	122.34	0.00	3.29	115.75	9.88	125.63
F	136.05	18.01	154.06	0.00	0.00	136.05	18.01	154.06
G	145.90	10.86	156.76	0.00	3.91	145.90	14.77	160.67
H	148.88	10.66	159.54	-11.00	0.00	137.88	10.66	148.54
I	132.15	6.51	138.66	0.00	5.20	132.15	11.71	143.86
J	142.38	8.31	150.69	- 5.08	0.00	137.30	8.31	145.61
Range	102.12 to 148.88	6.51 to 18.01	114.84 to 159.54	-11.00 to 0.00	0.00 to 6.24	100.98 to 145.90	8.31 to 18.01	114.84 to 160.67
Ave.	130.43	10.39	140.82	- 3.78	2.31	126.65	12.70	139.35

These data imply that at least fourteen square feet and not less than ten square feet of floor space is needed for closet storage space in bedroom II, to meet the projected needs of these homemakers who lived in small three bedroom houses.

Open space. The majority of the homemakers were willing to give up a little of the open floor space for additional closet storage space and for additional floor space in another room or area in the house. On the average, about four square feet (3.78 square feet) of open floor space were given up by the homemakers in bedroom II (Table VI).

The homemakers wanted from about one hundred one to one hundred forty six square feet (100.98 to 145.90 square feet) of open floor space in bedroom II (Table VI).

One hundred thirty seven square feet of open floor space in bedroom II would satisfy all but four of the homemakers. Less than one hundred fifteen square feet of open floor space in bedroom II would satisfy only four of the homemakers.

These data point out that about one hundred thirty eight square feet of open floor space is needed in bedroom II, if the majority of the homemakers studied are to be satisfied.

Including the fourteen square feet of floor space for closet storage space, a total of at least one hundred fifty two square feet of floor space is needed for bedroom II, to meet the suggestions of the homemakers studied.

Bedroom III

Storage space. Half of the homemakers wanted more floor space allotted for closet storage space in bedroom III. The amount of additional closet storage space suggested by the homemakers ranged from about two to six square feet (2.25 to 6.24 square feet), with an average of 2.31 square feet (Table VII). The adjusted total storage space wanted by the homemakers ranged from six to thirteen square feet for the ten houses studied. The average amount of closet storage space wanted was ten square feet (10.32 square feet) (Table VII).

A closet of twelve square feet would satisfy all but four of the homemakers. Ten square feet of closet space would satisfy only eight of the homemakers.

These data suggest that a closet ten feet square and preferably twelve feet square is needed in the third bedroom of small houses if the majority of the homemakers studied are to be satisfied.

Open space. The open floor space in the third bedroom changed very little. Since the bedroom was small, less than one square foot of floor space was given up by the homemakers for additional storage or for additional open floor space in another room or area in the house. Therefore, the additional square footage for more closet storage space in the third bedroom had to come from some other area of the house. Some of this additional space came from the living room, hall, or another bedroom.

TABLE VII

BEDROOM III FLOOR SPACE PROVIDED BY TEN DIFFERENT HOUSE PLANS INCLUDING AVERAGE CHANGES SUGGESTED BY TWO HOMEMAKERS LIVING IN EACH OF THE DIFFERENT HOUSE PLANS

House Plans	Existing Space			Suggested Space Alterations		Adjusted Space		
	Open Space	Storage Space	Total Space	Open Space	Storage Space	Open Space	Storage Space	Total Space
	square feet							
A	109.21	11.25	120.46	6.00	0.00	115.21	11.25	126.46
B	123.74	6.76	130.50	- 0.20	6.24	123.54	13.00	136.54
C	101.22	6.24	107.46	- 1.65	6.06	99.57	12.30	111.87
D	102.51	6.41	108.92	0.00	0.00	102.51	6.41	108.92
E	100.00	6.59	106.59	0.00	3.29	100.00	9.88	109.88
F	103.30	10.92	114.22	-10.33	0.00	92.97	10.92	103.89
G	128.99	8.53	137.52	0.00	3.41	128.99	11.94	140.93
H	137.92	6.00	143.92	0.00	2.25	137.92	8.25	146.17
I	120.00	10.75	130.75	0.00	0.00	120.00	10.75	130.75
J	141.75	8.49	150.24	0.00	0.00	141.75	8.49	150.24
Range	100.00 to 141.75	6.00 to 11.25	106.59 to 150.24	-10.33 to 6.00	0.00 to 6.24	92.97 to 141.75	6.41 to 13.00	103.89 to 150.24
Ave.	116.86	8.19	125.05	- 0.62	2.13	116.24	10.32	126.56

The homemakers wanted from ninety three to one hundred forty two square feet of open floor space in bedroom III, with an average of one hundred sixteen square feet.

A third bedroom of one hundred thirty seven square feet of open floor space would satisfy all but two of the homemakers. Less than one hundred twenty square feet of open floor space would meet the needs of only eight of the homemakers (Table VII).

These data suggest that about one hundred thirty square feet and not less than one hundred twenty five square feet of open floor space is needed in the third bedroom if the majority of the projected needs of the homemakers studied are to be satisfied.

Including the twelve square feet for closet storage space, a total of one hundred forty two square feet of floor space is needed for the third bedroom of a small three bedroom house, according to the homemakers interviewed.

Considering all three bedrooms, the majority of the homemakers were willing to give up some of the open floor space for more closet storage space.

The Bathrooms

Storage space. The majority of the homemakers wanted more floor space allocated for storage space in the main bathroom. One half of the bathrooms in the houses studied did not have any storage space provided. The amount of additional bathroom storage space suggested ranged from one and one-half to about two square feet (1.50 to 1.88 square feet).

The adjusted total storage space wanted by the homemakers ranged from one and one-half to ten square feet (1.50 to 10.18 square feet) for the ten houses studied. The average total amount of bathroom storage space suggested was about four square feet (3.87 square feet) (Table VIII).

Eight square feet of storage space in the bathroom would satisfy all but two of the homemakers. One and one-half square feet of storage would not meet the needs of half of the homemakers.

At least five square feet of floor space for storage space was wanted for the main bathroom of these small three bedroom houses, if the projected needs of the majority of the homemakers are to be satisfied.

Open space. The amount of open floor space in the main bathroom decreased less than one square foot. This small amount of open floor space was given up by the homemakers in the small bathrooms for more storage space. The additional amount of floor space for storage space came from some other part of the house.

The homemakers wanted a total of about seventeen to thirty three square feet (16.81 to 33.03 square feet) of open floor space in the bathroom, with an average of twenty five square feet (Table VIII).

Only one bathroom increased in total size because of the suggested bathroom storage space. The total size suggested for the ten bathrooms including storage and bathroom fixtures ranged from thirty seven to sixty nine square feet (37.45 to 69.36 square feet). The average size for the bathrooms wanted was about fifty square feet (49.61 square feet) (Table VIII).

A bathroom sixty three square feet in size would satisfy all but two of the homemakers.

TABLE VIII

BATHROOM FLOOR SPACE PROVIDED BY TEN DIFFERENT HOUSE PLANS INCLUDING AVERAGE CHANGES SUGGESTED BY TWO HOMEMAKERS LIVING IN EACH OF THE DIFFERENT HOUSE PLANS

	Existing Space			Suggested Space Alterations		Adjusted Space		
House Plans	Open Space	Storage Space	Total[1] Space	Open Space	Storage Space	Open Space	Storage Space	Total[1] Space
	square feet							
A	33.03	10.18	69.36	0.00	0.00	33.03	10.18	69.36
B	21.14	2.66	48.01	5.08	0.00	26.22	2.66	48.01
C	21.09	3.80	45.36	-1.50	1.50	19.59	5.30	45.36
D	15.86	0.00	35.00	0.95	1.50	16.81	1.50	37.45
E	24.15	0.00	41.65	-1.50	1.50	22.65	1.50	41.65
F	31.25	6.32	57.55	-1.50	1.50	29.75	7.82	57.55
G	20.96	0.00	42.23	-1.50	1.50	19.46	1.50	42.23
H	31.28	0.00	50.00	-1.50	1.50	29.78	1.50	50.00
I	33.13	3.33	62.76	-1.88	1.88	31.25	5.21	62.76
J	20.85	0.00	41.75	-1.50	1.50	19.35	1.50	41.75
Range	15.86 to 33.13	0.00 to 10.18	35.00 to 69.36	-1.50 to 5.08	0.00 to 1.88	16.81 to 33.03	1.50 to 10.18	37.45 to 69.36
Ave.	25.27	2.63	49.37	-0.49	1.24	24.78	3.87	49.61

[1]Total includes approximately 20 square feet allowed for bathroom fixtures, including tub.

These data indicate that a bathroom of approximately fifty eight square feet is needed in a small three bedroom house in order to satisfy the majority of the homemakers studied. This space includes the five square feet wanted for storage space and approximately twenty square feet for the bathroom fixtures, including a tub, and the remainder for open floor space.

All the homemakers wanted storage in the bathroom. The data suggest that allotting some floor space for storage space would make small three bedroom houses more satisfying to the homemakers studied.

The Outside Storage-Utility Areas

Storage space. All the homemakers wanted some built-in storage space in the outside storage-utility area. The storage space would include space for the storage of household items as well as laundry supplies and small laundry equipment. The amount of open floor space for built-in storage space suggested by the homemakers ranged from nine and one-half to nineteen and one-half square feet (9.50 to 19.42 square feet) (Table IX).

The adjusted total storage space in the outside storage-utility area wanted by the homemakers ranged from nine and one-half to twenty eight and one-half square feet (9.50 to 28.56 square feet) for the ten houses studied. The second largest amount for built-in storage space was nineteen and one-half square feet. The average total amount of storage space wanted for the outside storage-utility area was sixteen square feet (Table IX).

TABLE IX

OUTSIDE STORAGE-UTILITY AREA FLOOR SPACE PROVIDED BY TEN DIFFERENT HOUSE PLANS INCLUDING AVERAGE CHANGES SUGGESTED BY TWO HOMEMAKERS LIVING IN EACH OF THE DIFFERENT HOUSE PLANS

	Existing Space			Suggested Space Alterations		Adjusted Space		
House Plans	Open Space	Storage Space	Total[1] Space	Open Space	Storage Space	Open Space	Storage Space	Total[1] Space
	square feet							
A	50.09	0.00	58.75	-15.50	15.50	34.59	15.50	58.75
B	47.77	0.00	59.02	-19.42	19.42	28.35	19.42	59.02
C	73.76	14.56	97.23	-19.00	14.00	54.76	28.56	92.23
D	40.19	0.00	49.69	-14.38	9.50	25.81	9.50	44.81
E	59.53	0.00	67.50	-17.75	17.75	41.78	17.75	67.50
F	17.89	0.00	48.24	-11.50	11.50	6.39	11.50	48.24
G	49.75	0.00	58.75	-19.17	19.17	30.58	19.17	58.75
H	31.83	0.00	44.19	-13.83	13.83	17.99	13.83	44.19
I	48.10	0.00	56.60	-16.16	16.16	31.94	16.16	56.60
J	22.63	0.00	27.69	- 9.50	9.50	13.13	9.50	27.69
Range	17.89 to 73.76	0.00 to 14.56	27.69 to 97.23	- 9.50 to -19.42	9.50 to 19.42	6.39 to 54.76	9.50 to 28.56	27.69 to 92.23
Ave.	44.15	1.46	56.77	-15.62	14.63	28.53	16.09	55.78

[1]Total includes 12 square feet allowed for hot water heater and laundry equipment.

These data imply that preferably twenty square feet and at least fifteen square feet of built-in storage space is needed in the outside storage-utility area of these small three bedroom houses. Since these houses did not have an attic, a basement, or a carport, this area was the only space that could be used by the homemakers for general storage. Most of the homemakers suggested that open shelves from floor to ceiling would be desirable for the storage space in this area.

Open space. On the average, the homemakers were willing to use one square foot of open floor space in the outside storage-utility area for additional floor space in another room or area in the house.

The homemakers suggested from six to fifty five square feet (6.39 to 54.76 square feet) of open floor space in the outside storage-utility area, with an average of twenty eight and one-half square feet (Table IX).

The total size suggested for the ten outside storage-utility areas studied ranged from twenty eight to ninety two square feet. The second largest area was sixty seven and one-half square feet.

These data suggest that an outside storage-utility area of at least sixty five square feet is needed with a small three bedroom house that has neither a carport, basement, nor attic, if the projected needs of the majority of the homemakers are to be met. This space includes twenty square feet for built-in storage space, approximately twelve square feet for laundry equipment, and the remainder for open floor space.

The Halls

Storage space. Since the hall serves as a passageway from one part of the house to another and the homemakers felt that storage space

in particular rooms or areas was of more importance, the hall storage space increased in only one of the houses studied.

On the average the homemakers wanted three and one-half square feet of closet storage space in the hall (Table X).

A hall closet preferably four square feet and not less than three and one-half square feet is needed in these small houses with limited closet storage space, if the majority of the homemakers are to be satisfied.

Open space. The amount of hall space will be dependant upon the arrangement of the rooms in the house.

The hall space ranged from thirty eight and one-half to one hundred twelve square feet, with an average of fifty nine square feet. With the increase in the amount of hall storage wanted by the homemakers, the average of the total amount of space increased approximately one square foot (Table X).

These data indicate that a hall of approximately sixty five square feet was satisfactory in these small houses. This amount includes approximately seven square feet for the furnace, four square feet of storage space, and the remainder for passage.

II. SQUARE FOOTAGES FOR THE ENTIRE HOUSE

The average existing sizes of the open storage and total spaces for the nine areas of the houses studied are shown in Table XI. The recommended sizes for each of the nine areas also are given in Table XI. The desires of all twenty homemakers were considered in arriving at the

TABLE X

HALL FLOOR SPACE PROVIDED BY THE TEN DIFFERENT HOUSE PLANS INCLUDING AVERAGE CHANGES SUGGESTED BY TWO HOMEMAKERS LIVING IN EACH OF THE DIFFERENT HOUSE PLANS

	Existing Space			Suggested Space Alterations		Adjusted Space		
House Plans	Open Space	Storage Space	Total[1] Space	Open Space	Storage Space	Open Space	Storage Space	Total[1] Space
				square feet				
A	63.85	0.00	70.84	0.00	0.00	63.85	0.00	70.84
B	34.68	3.29	44.38	-1.54	0.00	33.14	3.29	42.63
C	30.99	0.00	38.56	0.00	0.00	30.99	0.00	38.56
D	42.99	2.60	52.35	0.00	7.62	42.99	10.22	59.97
E	51.00	0.00	61.26	0.00	0.00	51.00	0.00	61.26
F	52.08	0.00	52.08	0.00	0.00	52.08	0.00	52.08
G	92.60	12.50	111.88	0.00	0.00	92.60	12.50	111.88
H	35.73	2.84	44.39	0.00	0.00	35.73	2.84	44.39
I	55.50	3.60	65.55	0.00	0.00	55.50	3.60	65.55
J	41.17	2.54	52.65	0.00	0.00	41.17	2.54	52.65
Range	30.99 to 92.60	0.00 to 12.50	38.56 to 111.88	-1.54 to 0.00	7.62 to 0.00	30.99 to 92.60	0.00 to 12.50	38.56 to 111.88
Ave.	50.06	2.74	59.39	-0.15	0.76	49.91	3.50	59.59

[1]Total includes about 7 square feet allowed for furnace.

TABLE XI

EXISTING AND RECOMMENDED FLOOR SPACE FOR NINE ROOMS OF THE TWENTY SMALL THREE BEDROOM HOUSES STUDIED

Rooms or Areas	Existing Space						Recommended Space		
	Open Space		Storage Space		Total Space		Open	Storage	Total[1]
	Range	Average	Range	Average	Range	Average			
	square feet								
Kitchen	23.82 to 54.29	36.59	10.34 to 20.05	14.84	59.57 to 86.70	70.91	41.00	24.00	84.00
Dining Area in the Kitchen	50.61 to 184.43	88.28	0.00 to 0.00	0.00	50.61 to 184.43	88.28	92.00	6.00	98.00
Living Room	187.79 to 278.47	218.55	0.00 to 10.40	6.39	189.28 to 288.87	224.94	220.00	10.00	230.00
Bedroom I	95.39 to 163.24	128.56	6.24 to 15.66	10.85	101.63 to 173.12	139.41	138.00	15.00	153.00
Bedroom II	102.02 to 148.88	130.43	6.51 to 18.01	10.39	114.84 to 159.54	140.82	138.00	14.00	152.00
Bedroom III	100.00 to 141.75	116.86	6.00 to 11.25	8.19	106.59 to 150.24	125.05	130.00	12.00	142.00

TABLE XI (continued)

Bathroom	15.86 to 33.13	25.27	0.00 to 10.18	2.63	35.00 to 69.36	49.37	33.00	5.00	58.00
Hall	30.99 to 92.60	50.06	0.00 to 12.50	2.74	38.56 to 111.88	59.39	54.00	4.00	65.00
Outside-Storage Utility Area	17.89 to 73.76	44.15	0.00 to 14.56	1.46	27.69 to 97.23	56.77	33.00	20.00	65.00
Total House		838.72		57.49		954.94	879.00	110.00	1047.00

[1]Total includes 19 square feet for kitchen appliances, 20 square feet for bathroom fixtures, including a tub, 7 square feet for the furnace in the hall, and 12 square feet for the hot water heater and laundry equipment.

recommendations for each area. The desires of the majority were met for each area which resulted in a house somewhat larger than the average size of the houses studied.

All of the homemakers wanted more storage space particularly in the kitchen, the utility area and the bedroom and the bathroom. In order to meet the desires of the majority of homemakers studied, the storage space of all of the areas needed to be increased. Overall, the average amount of storage space provided (57.49 square feet) needed to be almost doubled up to one hundred ten square feet to meet the suggestions of the homemakers studied (Table XI).

The recommended open space for the nine areas was also increased in accordance with the desires of the majority of the homemakers studied. The open floor space increased from 838.72 to 879.00 square feet, and increase overall of thirty square feet. All areas except the outside storage-utility are increased slightly.

Most of the suggested changes are for increased storage space, from the average, about ten square feet of additional storage space in the kitchen, about six square feet in the dining area in the kitchen, about four square feet in the living room, about eleven square feet for the three bedrooms, two and one-half square feet in the bathroom, about nineteen square feet of built-in shelves in the outside storage-utility area, and about two square feet of additional storage in the hall (Table XI).

The additional walls, doors, shelves, and labor required in order to add such storage space would undoubtedly increase the cost of a house. However, this study indicates that the builder who substitutes

storage space for walls, or who can find and use less expensive methods of providing the needed storage space should have a more saleable product.

It was difficult to compare the storage and open spaces suggested by the homemakers interviewed with the amounts recommended in the research included in the review of literature and the minimum amounts required by FHA because of differences in types of measurements. For example, some of the research data were particularly difficult to interpret in terms of square footages of floor space required. The following general observations were based on the comparisons that were possible.

Kitchens

In the kitchen, the amount of storage space wanted by the homemakers studied was greater than the minimum required by FHA and was slightly more than the liberal amount recommended by some research.

The total size kitchen wanted by the homemakers was larger than the kitchen FHA requires in a three bedroom or a four bedroom house. Sizes of kitchens as a whole are not given the research.

Dining Area in the Kitchens

The research to date on the storage needs in the dining area was difficult to interpret as square feet of floor space required. FHA did not require storage space in the dining area.

The amount of dining area open floor space in the kitchen wanted by the homemakers was more than the minimum amount of dining area

recommended by some research. These small houses had no other dining areas and the homemakers found the small space inadequate when feeding children in high chairs or for feeding guests.

Living Rooms

The amount of living room storage space wanted by the homemakers was greater than that required by FHA. No living room storage measurements were given in the literature reviewed except for some coat closet measurements.

The amount of open floor space wanted in the living room by the homemakers is greater than the amount required by FHA in small three bedroom houses. No recommended living room sizes were in the literature reviewed.

Bedrooms

The amount of space wanted for closet storage space in all the bedrooms was greater than the minimum required by FHA and was slightly greater than the limited amount recommended by some of the research workers.

The amount of open floor space that the homemakers asked for in bedroom I and in bedroom II was almost half of the total square footage required by FHA for three bedrooms. The amount of open floor space wanted in bedroom III was more than one third of the total amount required by FHA for three bedrooms. No recommended measurements for bedrooms were given in the literature reviewed.

Bathrooms

No actual bathroom storage space recommendations were given in the review of literature or required by FHA. However, considering that possibly some of the suggested storage space might be used for linen storage, the amount of storage space wanted in the bathroom was greater than the amount required by FHA for linen storage and was about the same amount as recommended by some research workers.

The size of the bathroom suggested by the homemakers is more than the size recommended in the literature reviewed. FHA did not require a definite size bathroom.

Outside Storage-Utility Areas

The amount of utility storage space recommended by some research workers is not comparable to the amount wanted by the homemakers in the outside storage-utility area, since it is used for both laundry and general storage. FHA does not require any built-in storage space in this area.

The literature reviewed indicated that approximately thirty four square feet were required to use an automatic washer, a dryer, and a basket. No actual measurements were required by FHA.

Hall

Hall storage requirements were not included in the research reviewed nor required by FHA. The twenty homemakers studied wanted an average of four square feet of hall storage space.

The amount of hall space will be dependent upon the arrangement of the rooms in the house. The width of the hall is of importance for the movement of people and furniture.

CHAPTER V

STATISTICAL ANALYSIS OF DATA

In order to test the differences in the square feet of storage and differences in the square feet of open space between the plans and between the areas as compared with family preferences, analyses of variance were made.

Differences in the Changes of Storage Space Wanted

The analysis of variance for the changes in the square footage of storage space wanted is given in Table XII. The null hypotheses tested were:

1. There was no difference between the ten house plans in regard to the changes in storage space wanted by the homemakers.

This hypothesis was not rejected.

2. There was no difference between the rooms or areas in regard to the changes in storage space wanted by the homemakers.

This hypothesis was rejected.

3. The variance between plan-area interaction and families was included in the total analysis. The null hypothesis that there was no difference between the families in the changes in storage space wanted by the homemakers could not be tested directly, since each family occupied only one house.

Observed differences were associated with the differences between house plans or differences between areas within the houses, rather than just preferences of the families occupying the house. Thus,

TABLE XII

ANALYSIS OF VARIANCE OF THE CHANGES DESIRED FOR STORAGE SPACE IN THE PRESENT HOUSE PLANS

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square
Plans	9	298.51	33.17
Areas	8	3,368.30	421.04
Plan-Area Interaction	72	1,271.43	17.66
Within (Families)	90	1,436.45	15.96
Total	179	6,374.69	

For plans, $F_{9,72} = \frac{33.17}{17.66} = 1.87$

F at 5% level = 2.00; at 1% level = 2.65

For areas, $F_{8,72} = \frac{421.04}{17.66} = 23.84$

F at 5% level = 2.06; at 1% level = 2.75

For Plan-Area Interaction, $F_{72,90} = \frac{17.66}{15.96} = 1.10$

F at 5% level = 1.47; at 1% level = 1.72

variation between family preferences formed the basis for deciding these other questions and could not itself be tested. In order to test the differences between families, they would have to live in more than one house or a larger number of families would have to live in a house with the same floor plan.

Differences in the Total Storage Space Wanted

The analysis of variance for the total square footage of storage space wanted is given in Table XIII. The null hypotheses tested were:

1. There was no difference between the ten house plans in regard to the total storage space wanted by the homemakers.

This hypothesis was not rejected.

2. There was no difference between the rooms or areas in regard to the total storage space wanted by the homemakers.

This hypothesis was rejected.

3. The variance between plan-area interaction and families was included in the total analysis. The null hypothesis that there was no difference between the families in the total storage space wanted by the homemakers could not be tested directly since each family occupied only one house.

Observed differences were associated with the differences between house plans or differences between areas within the houses, rather than just preferences of the families occupying the house. Thus, variation between family preferences formed the bases for deciding these other questions and could not itself be tested. In order to test the

TABLE XIII

ANALYSIS OF VARIANCE OF THE TOTAL SQUARE FEET DESIRED FOR STORAGE SPACE IN THE PRESENT HOUSE PLANS

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square
Plans	9	436.65	48.51
Areas	8	8,268.10	1,033.51
Plan-Area Interaction	72	2,004.49	27.84
Within (Families)	90	1,436.45	15.96
Total	179	12,145.69	

For plans, $F_{9,72} = \frac{48.51}{27.84} = 1.73$

F at 5% level = 2.00; at 1% level = 2.65

For areas, $F_{8,72} = \frac{1033.51}{27.84} = 37.12$

F at 5% level = 2.06; at 1% level = 2.75

For plan-area interaction, $F_{72,90} = \frac{27.84}{15.96} = 1.74$

F at 5% level = 1.47; at 1% level = 1.72

differences between families, they would have to live in more than one house or a larger number of families would have to live in a house with the same floor plan.

Differences in the Changes of Open Space Wanted

The analysis of variance for the changes in the square footage of open space wanted is given in Table XIV. The null hypotheses tested were:

1. There was no difference between the ten house plans in regard to the changes in open space wanted by the homemakers.

This hypothesis was not rejected.

2. There was no difference between the rooms or areas in regard to the changes in open space wanted by the homemakers.

This hypothesis was rejected.

3. The variance between plan-area interaction and families was included in the total analysis. The null hypothesis that there was no difference between the families in the changes in open space wanted by the homemakers could not be tested directly since each family occupied only one house. Observed differences were associated with the differences between house plans or differences between areas within the houses, rather than just preferences of the families occupying the house. Thus, variation between family preferences formed the basis for deciding these other questions and could not itself be tested. In order to test the differences between families, they would have to live in more than one house or a larger number of families would have to live in a house with the same floor plan.

TABLE XIV

ANALYSIS OF VARIANCE OF THE CHANGES DESIRED FOR OPEN FLOOR SPACE IN THE PRESENT HOUSE PLANS

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square
Plans	9	298.51	33.17
Areas	8	3,666.29	458.29
Plan-Area Interaction	72	4,368.30	60.67
Within (Families)	90	3,660.33	40.67
Total	179	11,993.43	

For plans, $F_{9,72} = \frac{33.17}{60.67} = 0.57$

F at 5% level = 2.00; at 1% level = 2.65

For areas, $F_{8,72} = \frac{458.29}{60.67} = 7.55$

F at 5% level = 2.06; at 1% level = 2.75

For plan-area interaction, $F_{72,90} = \frac{60.67}{40.67} = 1.49$

F at 5% level = 1.47; at 1% level = 1.72

Differences in the Total Storage Space Wanted

The analysis of variance for the total square footage of storage space wanted is given in Table XV. The null hypotheses tested were:

1. There was no difference between the ten house plans in regard to the total open space wanted by the homemakers.

This hypothesis was not rejected.

2. There was no difference between the rooms or areas in regard to the total open space wanted by the homemakers.

This hypothesis was rejected.

3. The variance between plan-area interaction and families was included in the total analysis. The null hypothesis that there was no difference between the families in the total open space wanted by the homemakers could not be tested directly since each family occupied only one house. Observed differences were associated with the differences between house plans or differences between areas within the houses, rather than just preferences of the families occupying the house. Thus, variation between family preferences formed the basis for deciding these other questions and could not itself be tested. In order to test the differences between families, they would have to live in more than one house or a larger number of families would have to live in the house with the same floor plan.

These data pointed out that the amount of storage space and the amount of open space wanted by the homemakers were probably dependent upon the differences between these ten house plans as compared with family preferences. The most significant difference in the analyses of

TABLE XV

ANALYSIS OF VARIANCE OF THE TOTAL SQUARE FEET DESIRED FOR OPEN FLOOR SPACE IN THE PRESENT HOUSE PLANS

Source of Variation	Degrees of Freedom	Sums of Squares	Mean Square
Plans	9	7,762.90	862.54
Areas	8	608,787.95	76,098.49
Plan-Area Interation	72	57,108.37	793.17
Within (Families)	90	3,660.33	40.67
Total	179	677,319.55	

For plans, $F_{9,72} = \frac{862.54}{793.17} = 1.08$

F at 5% level = 2.00; at 1% level = 2.65

For areas, $F_{8,72} = \frac{76,098.49}{793.17} = 95.94$

F at 5% level = 2.06; at 1% level = 2.75

For plan-area interaction, $F_{72,90} = \frac{793.17}{40.67} = 19.50$

F at 5% level = 1.47; at 1% level = 1.72

variance in the storage space and open space wanted by the homemakers was found to be between areas. The data suggest that the homemakers not only wanted more storage space, but they wanted it in particular areas.

Also, the size of particular rooms in small houses was of vital concern to the homemakers. In other words, the data suggest that the amount of storage space and of open space wanted in particular rooms was of primary importance to the homemakers studied regardless of differences in the ten house plans.

CHAPTER VI

ROOM RELATIONSHIPS

Since the arrangement of rooms to one another influences the interrelationship of the use of the rooms, the homemakers' preferences for three rooms to be near each of the eight rooms or areas were listed. Assuming the preferences were due to chance, the probability was computed for a particular room to be chosen as many times as it actually was chosen. If the number of times a room was chosen to be near another room was large enough for this probability to be less than five per cent or less than one per cent, the room is listed below:

	Level of Significance
Near the Kitchen:	
Dining room	1%
Family room	1%
Utility room	5%
Near the Dining Room:	
Living room	1%
Kitchen	1%
Family room	5%
Near the Living Room:	
Dining room	1%
Kitchen	5%
Near the Bedroom Area:	
Main Bathroom	1%
Near the Family Room:	
Kitchen	1%
Partial Bathroom	1%
Near the Utility Room:	
Family room	1%
Kitchen	1%

	Level of Significance
Near the Main Bathroom:	
Bedroom Area	1%
Near the Partial Bathroom:	
Family Room	1%
Kitchen	1%

Since it might be desirable to have particular rooms near an outside door, each of the twenty homemakers was given a choice of three rooms out of eight possible rooms in the house to be near the front door. If the number of times a room was chosen to be near the front door was large enough for the probability to be less than five per cent or less than one per cent, the room is listed below:

	Level of Significance
Near the Front Door	
Family Room	1%
Living Room	1%
Kitchen	1%

Each of the twenty homemakers was also asked to choose which three rooms out of the eight possible rooms in the house to be near the back door. If the number of times a room was chosen to be near the back door was large enough for the probability to be less than five per cent or less than one per cent, the room is listed below:

	Level of Significance
Near the Back Door	
Utility Room	1%
Family Room	1%
Kitchen	1%
Partial Bathroom	5%

Due to the arrangement of rooms in a house plan, it is possible that the hall is not the only means of passage from one room to another

in the house. Therefore, the homemakers were asked to choose one room out of eight possible rooms in the house to be used as a passageway.

The number of times the family room was chosen to be used as a passaway was large enough for this probability to be less than five per cent or less than one per cent.

To the author's knowledge no study has been done concerning the consumer's preferred room relationship to other rooms. It might well be that the selections made by the homemakers were biased in favor of traditional relationship of rooms or the intended use of the rooms influenced the preferred room arrangement.

Since present day laundering is no longer an all day task, the selection of the utility room to be near the kitchen rather than near the bedroom-bathroom area, which is the main location of the soiled clothes and linens, possible indicates a selection biased by tradition.

However, the homemakers selected the non-traditional location of the partial bathroom to be near the kitchen and near the family room. For young homemakers with young children, this arrangement would seem to be an asset to convenient home living.

Perhaps further study should be made of the preferred room relationships, using a larger sample, to ascertain how women would prefer to have the floor plan of a house arranged.

CHAPTER VII

SUMMARY AND CONCLUSIONS

This study sought to uncover homemakers' preferences for dividing space of small three bedroom houses into rooms. In addition, how homemakers prefer rooms divided into storage and into open floor spaces were studied. Room arrangement preferences also were included.

In order to control the size and type of house plan, similar plans from four Greensboro speculative builders were selected on the basis of having similar total outside square footage, the same number of rooms, and having neither a carport nor a basement. The plans chosen ranged from 1014.17 to 1284.03 square feet. Minus the space for walls, the space that was considered livable space ranged from 862.00 to 1044.93 square feet. Each house had nine rooms or areas.

Since the housing needs of different sizes of families vary, this study was limited to one size of family, a four member household, consisting of a father, a mother and two children. Two different families lived in each of the ten house plans. Thus, a total of twenty families were interviewed. The children varied in age from nine months to twelve years, with an average age of 5.06 years. Sixty five per cent of the families had lived in the house for less than one year. Thirty five per cent had lived in the house from one to four years.

This study was focused on the changes desired by homemakers in the storage and open floor space divisions in small houses, therefore when suggesting changes, the homemakers were not allowed to increase the outside dimensions of their houses.

Recommendations for the sizes of the nine rooms or areas for small speculative built houses, approximately 1000 square feet, according to the amount of storage and open floor space are listed in Table XVI, page 82. The amounts shown met the desires (from 80 to 90 per cent) of the homemakers interviewed.

Although all the homemakers did not suggest additional storage space in the same room, they all wanted more storage space in the house. More storage space was wanted first, in the kitchen, second, in the bathroom, third, in the bedroom area, and fourth, in the outside storage-utility area. These preferences occurred with a greater than chance frequency.

Since all the homemakers did not ask for the same total amount of storage space for each of the rooms, nor for the same amount of open space for each of the nine rooms, the differences in their responses could have been associated with differences in the house plans in which they lived or associated with differences in the desired sizes of the different rooms as compared with family preferences. In order to determine whether the differences were associated with differences between house plans or differences in the sizes of rooms as compared with family preferences, the variances were analyzed to test the null hypotheses that the homemakers' preferences were not associated with (1) differences between the house plans, or (2) differences in the sizes of rooms.

The variances in the storage space desired for each of the nine rooms were analyzed. This analysis tested the following hypotheses:

TABLE XVI

ROOM SPACE DIVISIONS FOR SMALL HOUSES THAT MET THE PROJECTED NEEDS OF THE MAJORITY OF THE TWENTY HOMEMAKERS

Room or Area	Recommended Space		
	Open Space	Storage Space	Total Space
	square feet		
Kitchen[1]	41	24	84
Kitchen-Dining Area	92	6	98
Living Room	220	10	230
Bedroom I	138	15	153
Bedroom II	138	14	152
Bedroom III	130	12	142
Bathroom[2]	33	5	58
Hall[3]	54	4	65
Outside Storage-Utility Area[4]	33	20	65
Total House	879	110	1047

[1]Total includes 19 square feet allowed for kitchen appliances.
[2]Total includes 20 square feet allowed for bathroom fixtures, including a tub.
[3]Total includes 7 square feet allowed for furnace.
[4]Total includes 12 square feet allowed for hot water heater and laundry equipment.

1. There was no difference between house plans. This hypothesis was not rejected.

2. There was no difference between the rooms. This hypothesis was rejected.

The variances in the open floor space desired by the homemakers for each of the nine rooms, were analyzed. This analysis tested the following hypotheses:

1. There was no difference between house plans. This hypothesis was not rejected.

2. There was no difference between the rooms. This hypothesis was rejected.

The suggested changes in the storage space for each of the nine areas and the suggested changes in the open space for each of the nine areas varied. In order to determine whether the differences were associated with differences between house plans or differences between sizes of rooms as compared with family preferences, the variances were analyzed to test the null hypotheses that the homemakers' suggestions were not due to (1) differences between the house plans, or differences in the sizes of rooms as compared with family preferences.

The variances in the suggested changes in the storage space for each of the nine rooms were analyzed. This analysis tested the following hypotheses:

1. There was no difference between house plans. This hypothesis was not rejected.

2. There was no difference between the rooms. This hypothesis was rejected.

The variances of the suggested changes in the open floor space for each of the nine rooms, were analyzed. This analysis tested the following hypothesis:

1. There was no difference between house plans. This hypothesis was not rejected.

2. There was no difference between the rooms. This hypothesis was rejected.

In all four tests the null hypothesis was rejected that the differences in storage and open floor space wanted by the homemakers and the differences in the suggested changes in storage and open floor space were not due to differences between rooms or areas. This indicates that the homemakers distinguished between the different rooms or areas when suggesting the changes in or the amount of storage and open floor space wanted in each room. In other words, the homemakers knew in which room or area they wanted more storage space and in which room or area they wanted more or less open floor space.

The preferences of homemakers for the nearness of rooms and the location of outside doors, that were large enough for the probability to be less than five per cent or less than one per cent are listed below:

	Level of Significance
Near the Kitchen:	
Dining Room	1%
Family Room	1%
Utility Room	5%

	Level of Significance
Near the Dining Room	
Living Room	1%
Kitchen	1%
Family Room	5%
Near the Living Room	
Dining Room	1%
Kitchen	5%
Near the Bedroom Area:	
Main Bathroom	1%
Near the Family Room	
Kitchen	1%
Partial Bathroom	1%
Near the Utility Room	
Family Room	1%
Kitchen	1%
Near the Main Bathroom	
Bedroom Area	1%
Near the Partial Bathroom:	
Family Room	1%
Kitchen	1%
Near the Front Door	
Family Room	1%
Living Room	1%
Kitchen	1%
Near the Back Door	
Utility Room	1%
Family Room	1%
Kitchen	1%
Partial Bathroom	5%

The family room was chosen to be used as a passageway enough times for the probability to be less than five per cent or less than one per cent.

It is recommended that additional studies concerning the sizes of rooms, the arrangement of rooms and the amount of storage and open

floor space preferred by homemakers in houses be undertaken. Such studies should prove helpful to both the builder and the buyer.

There are many other aspects to home planning that must be considered by both the builder and the buyer. In addition to the above it is recommended that further studies on texture of materials, orientation, design, lighting, visual spaces, privacy, circulation of air and of people, outdoor areas, prestige, the neighborhood, the cost of housing, climate control, or the style of house in relation to family needs or desires be undertaken. In order that house plans consider the preferences of families, such preferences need to be known. Actual home situations need to be studied if home builders are to understand the housing space preferences of the families for whom they build.

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APPENDIX

schedule no. _____

Date _____

Name _____ Address _____

Husband's occupation _____

Wife's Occupation
Part time _____
Full time _____

Children in family:

No. boys _____ Ages _____

No. girls _____ Ages _____

Number of years living in the house: _____

Used for Each Room or Area

Schedule No. _____

How much more storage space would you like? Or, would you give up any? How much? Would you prefer built-in or furniture storage?

Additional Built-in Storage (by builder)	Width	Length	Sq. Ft. of Floor Space
Closet			
Cabinets Base			
Wall			

Total sq. ft. _____

Remarks:

Considering that any additional furniture will probably take up some space, would you like to add or subtract any pieces of furniture in here? List any changes.

Add Pieces	Subtract Pieces

Remarks:

Do you and your family have enough room to do what you want to do in here? Would you like for this room to be larger? How much?

Additional space (other than built-in storage for:	Width	Length	Sq. Ft. of Floor Space
Furniture and/or Furniture storage			
Wall shelves (open)			
Living Space			

Total sq. ft. _____
Overall total sq. ft. _____

Remarks:

Which room or rooms would you make smaller to have this one larger for:

Built-in Storage

Room	Sq. ft.

Living Space

Room	Sq. ft.

If total area is to be smaller, see _____ room (s) or area (s) for how much smaller.

Schedule No. _____

Summary Sheet for Data and for The Homemaker to Rate Preferences

In order of preference, which rooms or areas you would prefer larger and smaller? Please rate both the living and the storage space.

Larger				Room	Smaller			
Living Space		Built-in Storage Space			Living Space		Built-in Storage Space	
Sq.ft.of Floor Sp.	Rate Pref.	Sq.ft.of Floor Sp.	Rate Pref.		Sq.ft.of Floor Sp.	Rate Pref.	Sq.ft.of Floor Sp.	Rate Pref.
				Kitchen				
				Dining Area in Kitchen				
				Utility Area				
				Living Room				
				Bedroom 1				
				Bedroom 2				
				Bedroom 3				
				Main Bath				
				Hall				
				Outside Storage				
Total:	Total:			Total:		Total:		

TOTAL: _____ SQ.FT.

TOTAL: _____ SQ.FT.

Schedule No. _____

Room Relationship

Of the seven different remaining rooms or areas which three do you think should be close to: (They can be equally important.)

1. the Kitchen

Room	Reason
a.	
b.	
c.	

2. the Dining Area

Room	Reason
a.	
b.	
c.	

3. the Living Room

Room	Reason
a.	
b.	
c.	

4. the Bedrooms

Room	Reason
a.	
b.	
c.	

5. the Family Room

Room	Reason
a.	
b.	
c.	

6. the Utility Area

Room	Reason
a.	
b.	
c.	

7. the Main Bath

Room	Reason
a.	
b.	
c.	

8. the Partial Bath

Room	Reason
a.	
b.	
c.	

Which three of these eight areas do you think should be close to:

1. the Front Door

Room	Reason
a.	
b.	
c.	

2. the Back Door

Room	Reason
a.	
b.	
c.	

Almost all plans of houses are laid out so that the people living in them have to go through one room to get to another. Which room would you prefer to use as a passaway?

Room	Reason
a.	

Diagrams for Room Relationships

Schedule No. _____

			Living Room		
		Dining Room		Main Bath	
I	Bedroom Area		Kitchen		Utility Area
		Partial Bath		Family Room	

			Living Room		
		Kitchen		Main Bath	
II	Bedroom Area		Dining Room		Utility Area
		Partial Bath		Family Room	

			Dining Room		
		Kitchen		Main Bath	
III	Bedroom Area		Living Room		Utility Area
		Partial Bath		Family Room	

			Dining Room		
		Kitchen		Main Bath	
IV	Living Room		Bedroom Area		Utility Area
		Partial Bath		Family Room	

Schedule No. _____

			Dining Room		
		Kitchen		Main Bath	
V	Living Room		Family Room		Utility Area
		Partial Bath		Bedroom Area	
			Dining Room		
		Kitchen		Main Bath	
VI	Living Room		Utility Room		Family Room
		Partial Bath		Bedroom Area	
			Dining Room		
		Kitchen		Utility Room	
VII	Living Room		Main Bath		Family Room
		Partial Bath		Bedroom Area	
			Dining Room		
		Kitchen		Utility Room	
VIII	Living Room		Partial Bath		Family Room
		Main Bath		Bedroom Area	

Schedule No. _____

			Dining Room		
		Kitchen		Utility Room	
I	Living Room		Front Door		Family Room
		Main Bath		Bedroom Area	
			Partial Bath		

			Dining Room		
		Kitchen		Utility Room	
II	Living Room		Back Door		Family Room
		Main Bath		Bedroom Area	
			Partial Bath		
